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AMOCO OIL COMPANY
WOOD RIVER REFINERYAMOCO CO.
WOOD RIVER AREASOLID WASTE DISPOSAL PROGRAM INCLUDING
CLOSURE PLANS FOR RIVERFRONT DISPOSAL AREA

ABSTRACT

A series of three on-site inspections of Amoco's waste disposal area beginning in September, 1979 culminated in the issuance of a notice of enforcement by the IEPA on March 10, 1980. A response to the notice was prepared stating: 1) that on-site disposal had been halted on March 19, 2) that the wastes in question would be stockpiled until supplemental permits could be obtained, and 3) describing associated activities in the management of solid wastes that began in early 1979. These items and plans for closure of the riverfront disposal area were discussed in a meeting with IEPA representatives from the Collinsville office on April 2. Closure plans include the removal of oil and water from wet areas, filling with non-hazardous solids, covering with soil, and sloping for proper drainage. Finally, the refinery fire drill field will be re-located on the closed disposal area.

INTRODUCTION

Amoco carried out on-site waste disposal in the Wood River Refinery for years under the assumption that the exemption in Section 21(e) of the Environmental Protection Act applied. However, on-site inspections by the IEPA on September 21, 1979, December 17, 1979, and February 14, 1980 alleged violation of the Act and regulations pursuant thereto.

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On March 10, 1980, a notice of enforcement was issued allowing 14 days for submission of clear and convincing evidence of immediate steps taken to correct the alleged violations. Some delay resulted since this notice was received during a strike by the union-represented refinery employees, but by March 19 a response was drafted and refinery management met and approved the plan.

The immediate steps taken and future plans were discussed in an April 2 meeting with representatives from the Collinsville Office, Division of Land/Noise Pollution Control. It was agreed in that meeting that Amoco would submit monthly progress reports, develop an outline of overall plans, and prepare a description of the closure procedure for the riverfront disposal area. This document describes both the overall plans and the proposed closure of the former disposal area.

IMMEDIATE CORRECTIVE ACTION

The immediate action taken to correct Amoco's alleged non-compliance due to the disposal activity in the riverfront area, was to cease all on-site disposal activities on March 19. Beginning that date, wastes formerly disposed of in the riverfront area were stockpiled until supplemental permits could be obtained for proper disposal in an off-site landfill.

Samples of these wastes were collected and submitted to an outside laboratory for the tests necessary for supplemental permitting. These samples included:

- 1) solids from softening boiler feed water, 2) spent polybutene filter clay,
- 3) spent jet fuel filter clay, 4) cracking catalyst fines, 5) API separator sludge, 6) oily dirt, and 7) oily rubbish.

FUTURE PLANS

Our ultimate goal is: 1) the development of an overall waste management plan that will include the evaluation of an incinerator, 2) closure of the former riverfront disposal area, 3) relocation of the fire drill field to that site, 4) the location of sites suitable for a hazardous waste landfill with the prospect of development, and 5) certification of large tonnage, non-hazardous waste materials for energy efficient nearby disposal or use.

Incinerator Evaluation

Solid wastes are produced in the Wood River Refinery from operations of both Amoco Chemicals Corporation and Amoco Oil Company. Because the larger volume is produced from chemicals operations, Amoco Chemicals was given the overall responsibility for the incinerator evaluation project.

Amoco Chemicals contracted with Hydrosience, Inc. for the development of an overall waste management plan to include the evaluation of an incinerator to handle Wood River wastes plus surplus wastes from Amoco Oil's Whiting and Sugar Creek refineries. Amoco Oil contracted separately with Hydrosience to evaluate the wastes from the three refineries as feed to the proposed incinerator.

Assessment of In-Place Wastes

As part of this total project, a program was developed for assessing the environmental effects of the wastes in-place in the riverfront area. This program included drilling shallow and deep wells to determine soil

structure, the extent of leaching, and the effect on ground water quality, if any. Core borings were made at selected locations in the disposal area to identify the in-place wastes.

All drilling and coring operations have been completed and the samples of water and solids are being analyzed.

Closure of Disposal Area

Closure of the former disposal site will involve the cleaning of several wet areas followed by filling, covering, and grading for proper drainage. In general, the wet areas will first be skimmed to recover any separated oil. Next, the water will be removed to the refinery surplus wastewater impoundment from where it will ultimately flow to the wastewater treatment plant before being discharged. Any empty drums or other debris remaining will be crushed and the area filled and smoothed. Dry areas will only have to be filled and smoothed.

The plan is to build up the former disposal area to the level of the surrounding protective dikes. To accomplish this, we will use available construction debris as fill material, and we hope to get the concurrence of the Agency to also use three dry, non-hazardous, solid waste materials from the refinery as fill: 1) solids from softening boiler feed water, 2) spent polybutene filter clay, and 3) cracking catalyst fines. Analyses of these materials are attached. Not only are these wastes non-hazardous and readily available, their use will preclude using more valuable soil for filling. In addition, the use of water softener solids will be beneficial because the high alkalinity of this material will serve to

neutralize any acid rain that might fall on the area.

The filled area will be topped off with 1'-2' of soil. The fill and cover will be applied and graded to drain the area, insofar as practicable, into an old 72" sewer that will carry run-off to the wastewater impoundment area and eventually to the wastewater treating plant.

Relocation of Fire Drill Field

The employee Fire Crew drill field will be relocated from its present site in the southeast section of the refinery property, to the closed and covered disposal area. This relocation will serve to lessen the unavoidable nuisance of the black smoke emitted during hands-on training in fire fighting techniques. There are residential areas to the north and to the east of the present fire drill field at distances of only 1/4 to 1/2 mile. Additionally, relocation of the fire drill field will free valuable real estate that can be used for future expansion of the refinery south tank field.

SUMMARY

Highlights of the solid waste disposal program at the Amoco Wood River Refinery are:

1. Halt on-site disposal on March 19, 1980 and commence process of obtaining supplemental permits for off-site disposal.

2. Develop overall waste management plan including evaluation of an incinerator.
3. Assess effects, if any, of wastes in-place in the riverfront disposal area.
4. Close the riverfront disposal area and relocate fire drill field to that site.

E. J. Sullivan

EJS/

Attachment

AMOCO WATER SOFTENER SOLIDS

Key components:

Calcium carbonate	85%
Magnesium hydroxide	12%

Metals profile:

<u>Element</u>	<u>ppm, Dry Basis</u>
Arsenic	1.4
Cadmium	1
Hex Chromium	<0.5
Tri Chromium	9
Copper	36
Mercury	1.4
Nickel	21
Lead	10
Zinc	18.2
Selenium	<0.1

Waste description: Inorganic, dry or slightly moist, lumpy solids

Annual volume: 2,000 cu. yds.

Hauler: Amoco Oil Company

AMOCO CRACKING CATALYST FINES

Key components: Alumina 35%
 Silica 65%

Metals profile:

<u>Element</u>	<u>ppm, Dry Basis</u>
Arsenic	1.7
Cadmium	< 1
Hex Chromium	< 0.5
Tri Chromium	91
Copper	44
Mercury	0.6
Nickel	170
Lead	90
Zinc	170
Selenium	1.8

Waste description: Inorganic, dry or slightly moist, fine solids

Annual volume: 450 cu. yds.

Hauler: Midwest Sanitary Service, Inc.

SPENT POLYBUTENE PLANT CLAY

<u>Component</u>	<u>Concentration, ppm (dry basis)</u>
Arsenic	1.4
Cadmium	0.8
Hex chromium	< 0.5
Tri chromium	56
Copper	25.7
Mercury	0.50
Nickel	19
Lead	< 10
Zinc	56
Selenium	< 1
Cyanide	0.11
pH	6.91

Key component - Attapulgius clay 60%
(Typical)

Moisture 30%

Organic material 10%

Waste Description: Slightly moist, granular solids

Annual Volume: 1700 cu. yds.

Hauler: Amoco Oil Company